



**SCOTSEAT**

KPM Marine

**Comfort and safety**  
when you need it most

SCOTSEATS  
KPM MARINE



## Comfort and safety when you need it most

Scot Seat Group, established in 2000 are UK based designers and manufacturers of specialist seating for the transportation market.



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for further information



The Group incorporates Scot Seat Direct Ltd and Scot Seat KPM Marine. Scot Seat Direct Ltd is the market leader in seating manufacture for commercial vehicles, buses, trains, fire engines and military use. Scot Seat KPM Marine provide specialist shock mitigation seats for use by rescue services, military operators, police forces as well as commercial boat operators.

Scot Seat Group is a family owned and operated business based in Ayrshire, Scotland with in-house skills ranging from metal fabrication, joinery, upholstery, spray painting/coating to composite manufacture facilitating both small and large orders to customers' specific requirements. The company manufacture approximately 12,000 commercial vehicle seats per year, as well as numerous customised specialist seating and mounting systems.

All seats comply with regulations pertaining to each industry for which they are intended and the team work closely with their customers advising and assisting with the specification.

Scot Seats are dedicated to improving the comfort and safety for all transportation seating needs.

# S2 Shock Mitigation Seat Range

The S2 Shock Mitigation seat range has been developed following several years of testing and working with some of the most demanding operators around the world.

The S2 Shock Mitigation mechanism is made from CNC machined marine grade aluminium with an anodized finish and 316 stainless steel fasteners. It offers height adjustment as standard, which is vital for the comfort and safety of varying heights of occupant.

As standard the S2 shock mitigation seats have custom built FOX Float 3 air shocks by FOX Defence, giving 150mm of movement. Extensive testing has proven that 150mm of travel is more than adequate for shock mitigation seating in high speed crafts. Too little travel will result in bottoming out and too much travel disconnects the Helmsman / Co-pilot from the craft and can be influential in causing sickness in passengers. The S2 system utilises the 150mm travel intelligently using the minimum amount of movement to reduce the impacts while still giving a bottomless feel.

When set at its standard pressure, the custom float air shock with its high-flow velocity sensitive damping suits a broad range of occupant weights without the need to adjust. Where extremes of occupant weight are required, for very light to very heavy or to fine tune the seat performance to personal preference the infinitely adjustable air spring can be adjusted very quickly and easily.

### Standard Features

- 150mm travel
- Height adjustment
- Weight adjustment
- Compact lightweight and robust design
- CNC machined marine grade aluminium
- 316 (A4) fasteners



S2J Jockey Seat Range ▼



S2H Helm Seat Range ▼



### Height adjustment

The S2 Shock Mitigation seat range has an advanced height adjustment system, which is available as an upgrade from the quick turn height adjustment on the S2 range of jockey and helmsman seats.

With one handed operation a 80mm height adjustment is possible whilst the occupant is seated.





# S2J Shock Mitigation Jockey Seat Range

## S2J Low Backrest Jockey Seat

The S2J Low Backrest Jockey Seat is the lightest compact jockey seat on the market. Perfect for situations when space is at a premium and performance cannot be sacrificed. The low backrest is perfect for very tight spaces and for occupants who need to carry back packs. It comes as standard with a top grab handle for use by the occupant seated behind. As all the S2J seat range the ergonomics of the S2J Low Back Jockey optimises the body posture to protect against injury.

## S2J Jockey Seat

The S2J Jockey Seat has proven itself as the ultimate shock mitigation jockey seat available. The prestigious list of customers is testament to its proven capability. It's full height backrest optimises the body posture to protect users from injury and when fitted with side support bolsters gives the occupant unrivalled comfort and protection in the most demanding sea conditions.

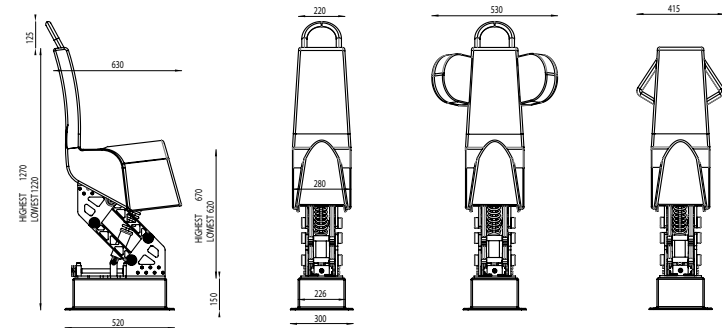
## S2J Wide Jockey Seat

The S2J Wide Jockey Seat is the most comfortable high performance jockey seat available. With its extra wide seat base with additional cushioning; whilst still having the narrow saddle section to the front of the seat; it has proven to be perfect for operators who spend extended periods of time at sea in demanding conditions. It is the perfect compromise between a normal jockey seat and a helmsman seat giving the occupant the ability to sit back and relax particularly when fitted with optional side support wings or be in a more active straddling position. It is a seat of choice for the most demanding military and coastal patrol operators who spend extended periods at sea and has proven hugely successful in offshore powerboat racing.

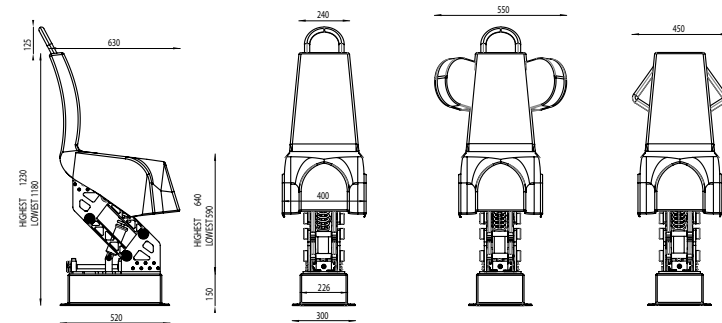


# S2J Shock Mitigation Seat Range

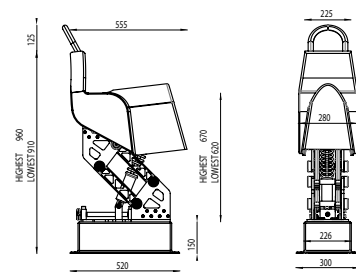
## S2J Jockey Seat ▼



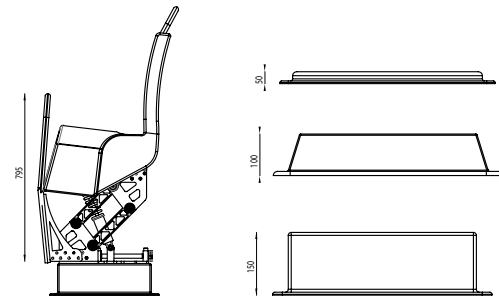
## S2J Wide Jockey Seat ▼



## S2J Low Backrest Jockey Seat ▼

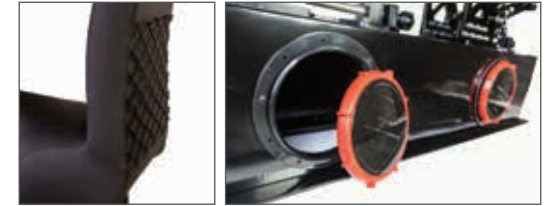


## S2J Front Grab Handle & POD Options ▼



# S2J Shock Mitigation Optional Extras

- Side support wings
- Front mounted grab handle
- Side grab handles (instead of wings)
- Waterproof Cordura® seat cover
- Elasticated mesh rear storage net
- Lap safety belt
- Tracked mounting system
- Mounting POD options
- Custom embroidery
- Front passenger grab handle





# S2H Shock Mitigation Helm Seat Range

The S2H Shock Mitigation Helm Seat range is available in many variations and has a lightweight aluminium seat top combined with a helm seat specific variant of the S2 Shock Mitigation mechanism.

The S2H seats are ergonomically designed for optimum body posture from 5<sup>th</sup> to 95<sup>th</sup> percentile body giving support and making this the ultimate shock mitigation seat for helm, co-pilot or crew where comfort and protection at all times is paramount.

The S2H seats can be fitted with lap, lap and diagonal or 4 point safety harnesses. Various options of adjustable armrests including armrests to accept vessel operating controls. They can also be supplied with custom mounting PODs complete with footrests to suit specific installations.

The S2H seat is suitable for use in open cockpits and enclosed wheelhouses.

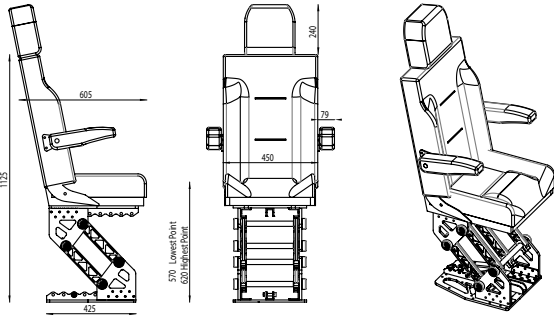
## S2 Mechanisms

The S2 range of shock mitigation mechanisms can be purchased as a stand-alone item to allow fitment of other seat tops.

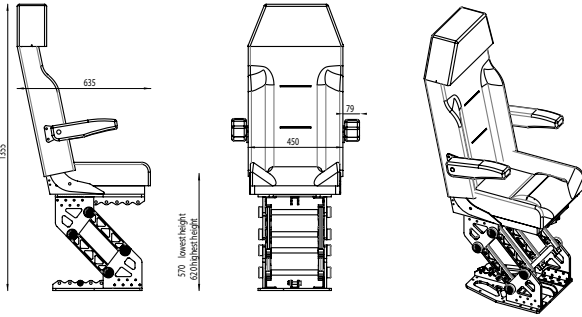


# S2H Shock Mitigation Helm Seat Range

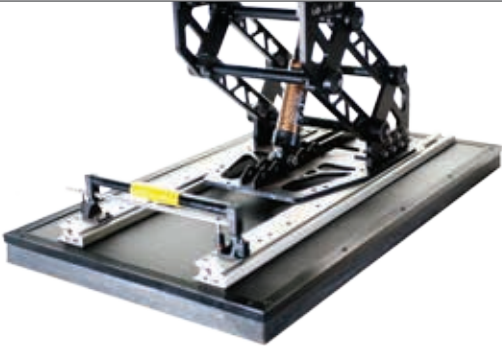
S2H Low Backrest Seat ▼



S2H High Backrest Seat ▼



S2H Optional Extras



# S2 Jockey & Helm Seat Range Specifications

Key: S = Standard O = Optional - = Not Available R = Special Request

	S2J Low Back	S2J	S2J Wide	S2H		S2J Low Back	S2J	S2J Wide	S2H
Weight (kg) from	19.5	20.5	23.5	26	Side support wings	O	O	O	O
Quick turn height adjustment	S	S	S	O	Side grab handles	O	O	O	O
Manual height adjustment	O	O	O	S	Top grab handle	S	S	S	S
Infinte adjustment for occupant weight	S	S	S	S	Insulated anti-slip cover for grab handles	O	O	O	O
FOX Float shock	S	S	S	S	Front passenger grab handle	O	O	O	O
GRP mounting pod	S	S	S	O	Footrest	O	O	O	O
Silver anodised mechsims	S	S	S	S	Folding / adjustable armrests	-	-	R	O
Black anodised mechsims	O	O	O	O	Armrests for controls	-	-	R	O
Mitigation foam	O	O	O	O	Elasticated mesh rear holding pouch	O	O	O	O
Trimmed in toughtec	O	S	S	S	Lap safety belt	O	O	O	O
Trimmed in marine vinyl	S	O	O	O	4 point harness (aircraft style buckle)	-	-	R	O
Trimmed in leather	O	O	O	O	Track mounting system	O	O	O	O
Waterproof Cordura® seat cover	O	O	O	O	Seat slider	O	O	O	O
Custom embroidery on seat back	O	O	O	O					



# SSH Suspension Helm & Crew Seat Range

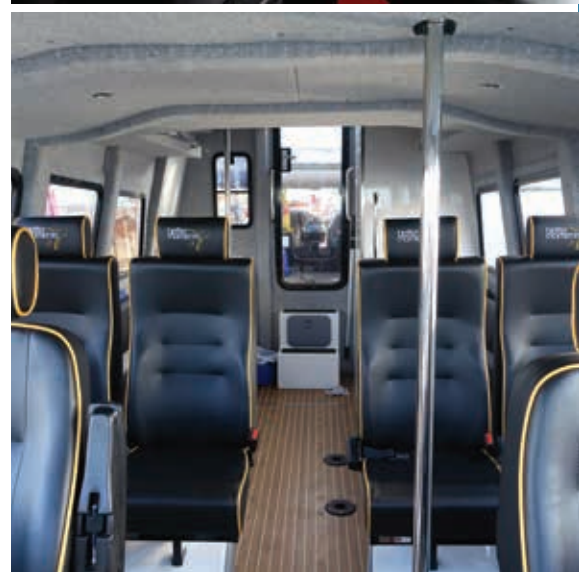
The SSH suspension seat range utilise a linear damping system rather than the progressive semi active system of the S2 shock mitigation seat range. The SSH suspension seats are designed for larger vessels with a slower top speed that encounter less G-forces than smaller high speed crafts.

The SSH range of seats are designed to be the most comfortable, safe seats during long transits and are commonly used in offshore crew transfer vessels, offshore wind farm support boats and offshore military, police and coastguard patrol vessels.

The SSH range comprises a variety of seats manufactured in steel, stainless steel and aluminium depending on requirements.

## Options:

- Lap, lap & diagonal or 4 point safety belts
- Trimmed in toughtec, marine vinyl, cloth or leather
- Folding adjustable armrests / Armrests for controls
- Recline and Lumbar adjustment options
- Heated seat panels
- Grab handles
- Elasticated storage nets
- Tracked mounting system
- Seat slider
- Seat swivels
- Fold down tables
- USB phone charge points



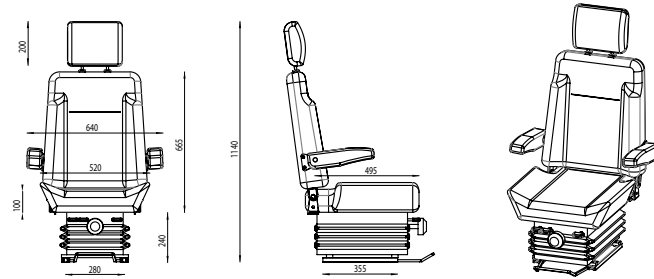


## SSH Steel Suspension Seat Range

The SSH range of steel suspension seats come with a wide variety of options with both mechanical and air suspension options. The air suspension option has not only pressure adjustment for occupant weight but also a damper adjuster which works in both the up and down stroke.

The SSH seats can be fitted with height and tilt adjustment, seat swivels, adjustable length seat squab, slide rails and have various options of low, medium and high backrest heights which can be fitted with lap, lap and diagonal or 4 point harness.

All components are coated for resistance to salt water.

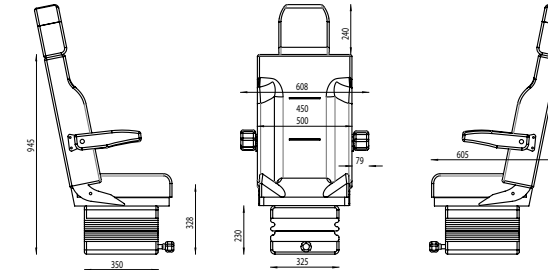


## SSH Aluminium & Stainless Steel Suspension Seat Range

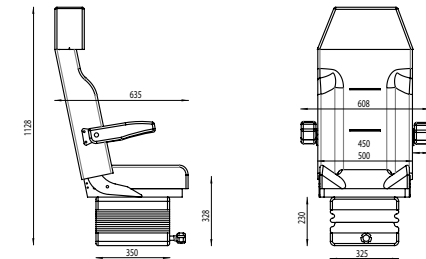
The SSH aluminium and stainless steel material suspension seats are designed specifically for the tough marine environment while being one of the lightest suspension seats on the market due to its unique design and specialist materials used in manufacture.

The SSH Aluminium Suspension Mechanism is adjustable for weight as standard and is available in low or high back variations with fixed or reclining backrest, the SSH seat supports the occupant keeping the body posture in the ergonomically correct position especially important on long transfers or patrols.

SSH Low Back Seat ▼



SSH High Back Seat ▼



# San Carlos

## Ferry/Crew Seat Range

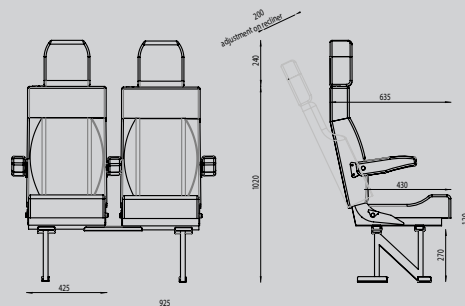
The San Carlos ferry and crew seat range is available in steel, stainless steel and aluminium material construction with options of low and high backrests with reclining options. The San Carlos seat range has been proven to offer superior comfort to many other ferry/crew seating options while being lightweight and robust making it the perfect option for small to large ferries.

### San Carlos Flip-up Seats

The deck mounted Free Standing San Carlos Flip-up seat is perfect for areas where space is at a premium when the seats are not in use. It offers the same levels of comfort and safety as the rest of the San Carlos ferry / crew seat range.

#### Options:

- Various seat widths available
- Lap, lap & diagonal or 4 point safety belts
- Trimmed in toughtec, marine vinyl, cloth or leather
- Folding adjustable armrests
- Grab handles
- Elasticated storage nets
- Life jacket holders
- Tracked mounting system
- Fold down tables
- USB phone charge points



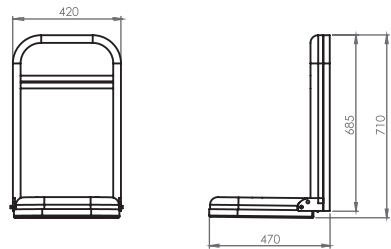


# Bulkhead / Wall Mounted Flip Up Seat Range

The Bulkhead / Wall Mounted Flip-up Seat is a compact seat with a spring assisted base designed to be fitted in confined spaces.

## Standard Specification:

- Steel, aluminium and stainless steel frame options
- Spring assisted flip-up seat bases
- High quality PU moulded seat and back foams
- ABS plastic seat base cover
- Can be trimmed in toughtec, marine vinyl, cloth, canvas or leather
- Can be built to customer specific dimensions



# Custom Design, Test & Manufacture

Scot Seats offer a complete design, test and manufacture service for customers' specific requirements from small quantity projects through to high volume production runs.

Whether it be a specialist modification on an existing seat or a complete new design, Scot Seats can assist with all requirements.

In house capabilities incorporate Solidworks 3d modeling, metal fabrication (steel, aluminium and stainless steel), wood work / joinery, composite manufacture, metal finishing / coating and upholstery.

Being an ISO 9001 approved company, all Scot Seat products are manufactured to highest standard and comply with EU conformity of production procedures.

Scot Seats are committed to protecting the environment in all of their business activities.



Removable  
Backrest Cushion



# Seat Trim Options and Upholstery Customisation

Scot Seats Shock Mitigation Jockey and Helm Seats come as standard trimmed in black or grey toughtec. Toughtec is a specialist fabric manufactured specifically for Scot Seats. The fabrics key qualities are, anti-slip whether wet or dry, UV resistant (will not fade or crack in sun) waterproof and extremely hard wearing.

With all upholstery work carried out in house the team of pattern makers, seamstresses and upholsters can trim seats in marine grade vinyl, cloth, PU leather or Napa leather to suit your preference.

This can include two tone material designs, custom embroidery, diamond stitching, and top stitching.





# Shock Mitigation Seat Testing

The Scot Seat Group motto ‘Comfort and Safety when you need it most’ is adopted by the product range from the very start of the design process through to trials, testing and manufacture of each product.

Every seating product is designed to suit 5<sup>th</sup> to 95<sup>th</sup> percentile body ergonomically correct to support proper body posture. This is a vital component of every seat, particularly on high speed craft seats where incorrect body posture and repeated shock impacts can cause injury.

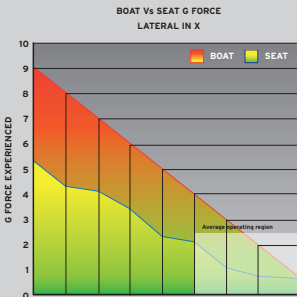
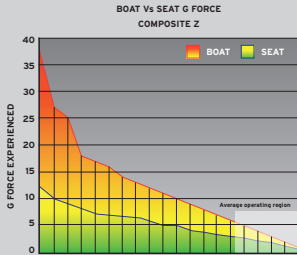
Focus is on safety with stress analysis studies carried out on all components, allowing products to be made as light as possible without sacrificing strength. Following computer generated analysis; static seat strength tests are carried out in Scot Seat’s test centre and both static and dynamic tests carried out by external TUV and DNV approved test centres.

Scot Seats in house test centre includes a drop test rig to allow for repeatable drop tests to be carried out and recorded that measure deck accelerations and seat accelerations. The drop test rig design allows for testing to UK MOD protocol 1 where testing of shock mitigation seats is undertaken in a repeatable manner allowing for accurate comparisons to be made for occupant weight and impact load ranging from 4 to 20g.

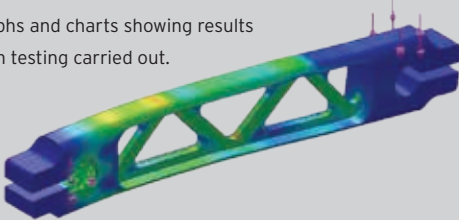
After accurate impact testing is undertaken both in-house and by recognised industry approved test centres, sea trials and testing are carried out to prove the comfort and shock mitigating performance of the seat at sea. Scot Seats range of shock mitigation seats are extensively tested at sea in a Scot Seat owned test RHIB, and upon request by boat builders and military and commercial operators worldwide. This testing has been the deciding factor for numerous operators to choose Scot Seats to protect their crews in the most demanding sea states.

Typical Test Session Parameters

		Boat	Seat
Sea state: 1 - 6	Max G	49G	11.5G
Speed: 0 - 50Knts	Min G	1.25G	0.45G
Test time: 7 hours	Av	2.09G	1.1G
Wave events: 45,064			



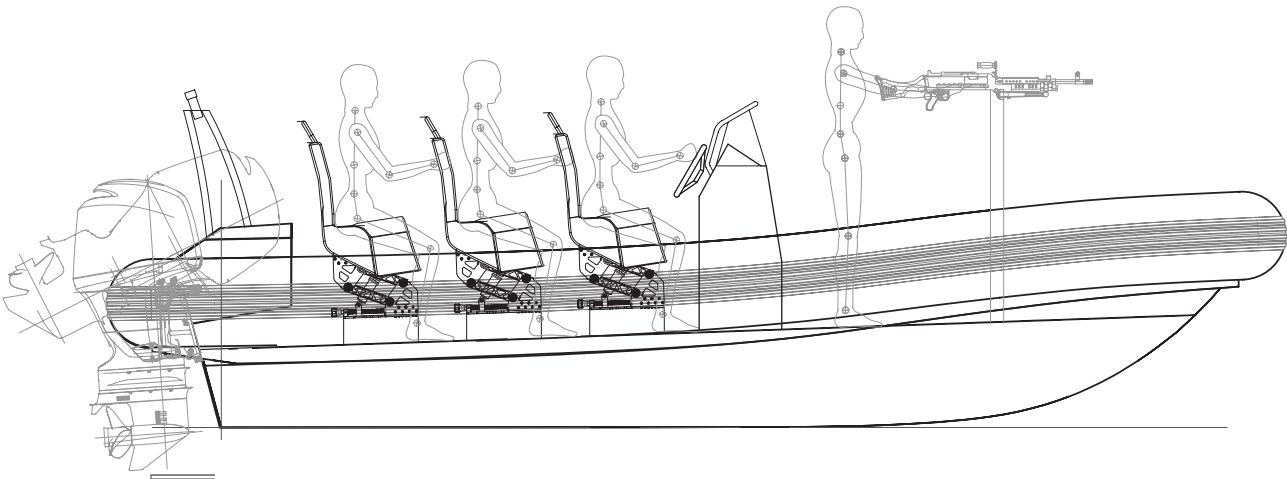
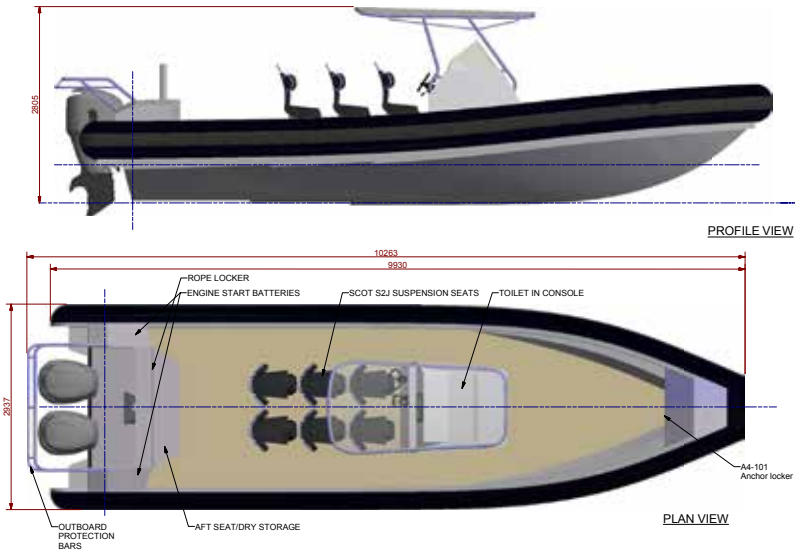
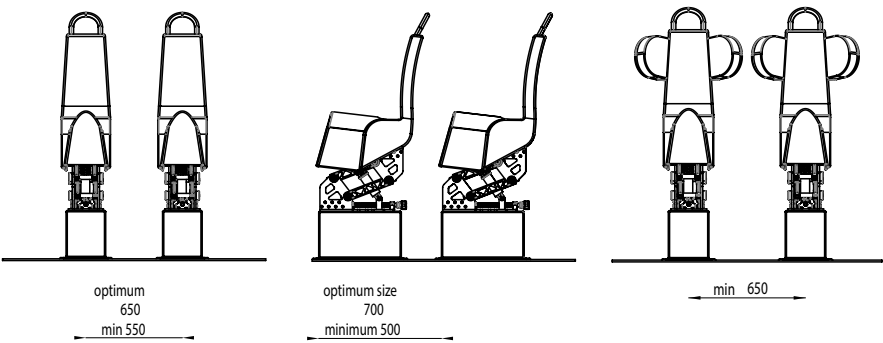
Graphs and charts showing results from testing carried out.



# Seat Layout Planning / Ergonomics Optimisation

Continuing with the Scot Seat motto '**Comfort and Safety when you need it most**' doesn't stop with designing a comfortable and safe seat.

Utilising the latest Solidworks 3d modelling software our dedicated design team work alongside boat builders, designers and naval architects to assist in achieving the optimal occupant seating position in correlation to steering and throttle controls and sight lines for helmsman and navigation controls for navigators.



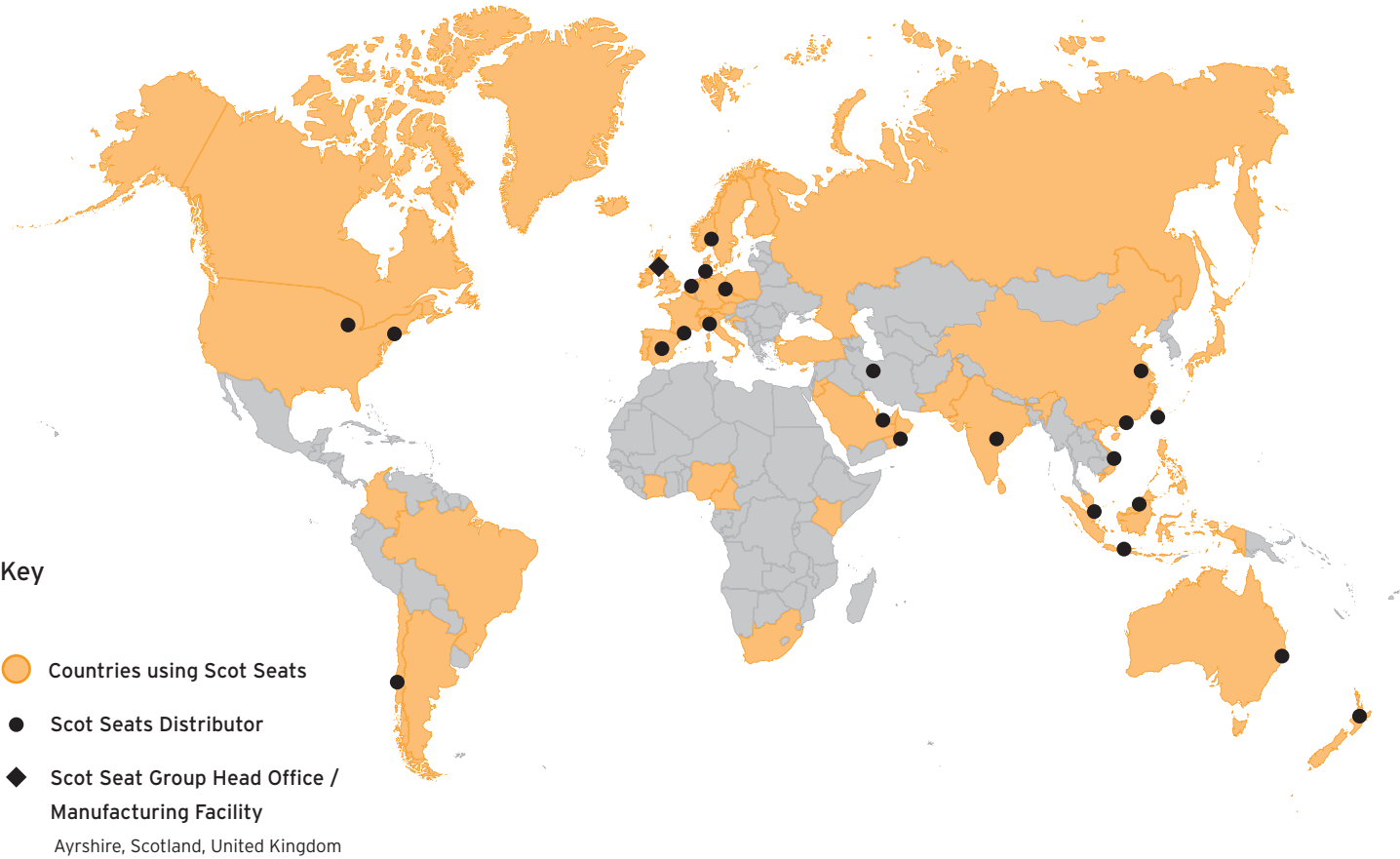
Images courtesy of Naiad Design Ltd.



## Customer References



# Distributors



# Reference List

Some of the many operators and shipyards currently using the Scot Seat product range include:

<b>Europe</b> <ul style="list-style-type: none"><li>Netherlands Royal Navy</li><li>Portuguese Navy</li><li>Swedish Sea Rescue</li><li>Swedish Police</li><li>Swedish Coast Guard</li><li>UK Marine Police</li><li>Croatian Police</li><li>Italian Armed Forces</li><li>French Special Forces</li><li>Norway Rescue Service NSSR</li><li>Norwegian Coast Guard</li><li>Greenpeace</li><li>London Port Authority</li><li>Irish Coast Guard</li><li>Polish Police</li><li>German Police Force (Marine Division)</li><li>Guardia Civil (Spain)</li><li>Finland Border Guard</li><li>Belgian Navy</li></ul>	<b>Asia</b> <ul style="list-style-type: none"><li>Indian Oil and Natural Gas Corporation (ONGC)</li><li>Indonesian Navy</li><li>Indonesian Army (Maritime Division)</li><li>Indonesian Customs Service</li><li>Vietnam Government</li><li>Hong Kong Marine Police</li><li>Singapore Immigration Department</li><li>Chinese Coast Guard</li></ul> <b>Middle East</b> <ul style="list-style-type: none"><li>UAE Coast Guard / CICPA</li><li>Royal Saudi Navy Forces</li><li>Royal Jordanian Navy</li></ul> <b>African Continent</b> <ul style="list-style-type: none"><li>Cameroon Navy</li><li>Nigerian Navy</li></ul>	<b>Shipyards</b> <ul style="list-style-type: none"><li>Abu Dhabi Ship Building (UAE)</li><li>AMF Boats (New Zealand)</li><li>ARESA (Spain)</li><li>ASIS Boats (UAE)</li><li>Armon (Spain)</li><li>CAMARC (UK)</li><li>CTRUK (UK)</li><li>Humber (UK)</li><li>Jordan Boats (Jordan)</li><li>Lita Ocean (Singapore)</li><li>Lung Teh Shipbuilding (Taiwan)</li><li>Marine Alutech (Finland)</li><li>Marine Specialised Technology (UK)</li><li>Nautic Africa (South Africa)</li><li>Rodman Polyships (Spain)</li><li>Redbay Boats (Northern Ireland)</li><li>RIS Marine (Croatia)</li><li>SEAS (Vietnam)</li><li>ufast (France)</li><li>Zodiac Milpro (France / Spain)</li></ul>
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